



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/549,597

10/05/2005

Brian J Kane

125277

1888

25944 7590 03/08/2007  
OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER

KRISHNAMURTHY, RAMESH

ART UNIT

PAPER NUMBER

3753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

03/08/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/549,597

Applicant(s)

KANE, BRIAN J

Examiner

Ramesh Krishnamurthy

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 - 4, 6, 10, 11 and 15 - 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 - 4, 6, 10, 11 and 22 - 28 is/are allowed.
- 6) ☒ Claim(s) 15 - 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

Art Unit: 3753

This office action is responsive to communications filed 02/16/2007.

**Claims 1 – 4, 6, 10, 11 and 15 - 28 are pending.**

1. The information disclosure statement (IDS) submitted on 02/16/2007 was filed after the mailing date of the first office action on 09/19/2006. However, to be considered the fee set forth in 37 CFR 1.17(p) is necessary. In accordance with the authorization provided on page 2 of the IDS submission noted above, a fee of \$180 will be charged to the Deposit account No. 15 – 0461.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15, 18, 19, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulter (US 3,457,949) in view of Collins (US 2,755,816).

Coulter discloses a non-return valve (Figs. 1 – 6) comprising a hollow sealing piston (54) received in a valve housing (10) and biased against a valve seat (40) by means of a spring (84) in a basic position, so that in the basic position a pressure medium connection between two working ports (34, 48) in the direction of flow therethrough is closed, characterized in that the sealing piston is manufactured by a plastics injection molding technique. A star configuration of bores (76) is disclosed through which the pressure medium may flow into a spring chamber and guide

Art Unit: 3753

projections (78) are formed between the bores (76). The sealing piston (54) has a receiving cone (58) having a rounded head (near (66)).

Coulter discloses the claimed invention with the exception of explicitly disclosing a multiplicity of bores with guide projections formed between the bores, associated with the sealing piston.

Collins discloses a check valve having sealing piston (17) provided with a multiplicity of bores (21) with guide projections formed between the bores for the purpose of providing smooth guidance of the piston within the valve housing. The axial length of such guide projections is clearly a design expedient dictated by the desire to obtain a valve of particular size which in turn is guided by the need to achieve a specific flow characteristic.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the sealing piston in Coulter, a multiplicity of bores with guide projections formed between the bores for the purpose of providing smooth guidance of the piston within the valve housing, as recognized by Collins. It is noted that axial length of such guide projections is clearly a design expedient dictated by the desire to obtain a valve of particular size which in turn is guided by the need to achieve a specific flow characteristic.

It is noted that provision of six recesses and four bores is a design expedient over those features disclosed in the combination of Coulter and Collins in that it provides no new and/or unexpected result nor solves any stated problem.

Art Unit: 3753

4. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as obvious over the combination of Coulter and Collins as applied to claims 15, 18, 19, 20 and 21 above, and further in view of Crosby et al. (US 4,695,602).

The combination of Coulter and Collins as set forth above discloses the claimed invention including the limitation that the sealing piston (54) is made of a plastic material by molding. In this office action the plastic material in Coulter is taken to include all known types of plastic including the known PEEK material as well a plastic material that is reinforced with 30% of carbon fiber.

However, should it be determined that the plastic material in Coulter does not include PEEK or that it does not include a plastic material that is reinforced with 30% of carbon fiber, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided in the combination of Coulter and Collins a PEEK material or a plastic material that is reinforced with 30% of carbon fiber, for the purpose of providing desired mechanical strength as evident from Crosby et al.

5. Claims 1 – 4, 6, 10, 11 and 22 – 28 are allowed.

#### ***Response to Arguments***

6. Applicant's arguments with respect to claims rejected above have been considered but are moot in view of the new ground(s) of rejection.

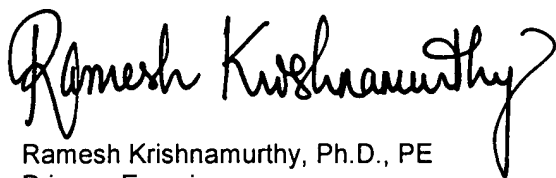
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramesh Krishnamurthy whose telephone number is (571) 272 – 4914. The examiner can normally be reached on Monday - Friday from 10:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel, can be reached on (571) 272 – 4929. The fax phone number

Art Unit: 3753

for the organization where this application or proceeding is assigned is (571) 273 – 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, reading "Ramesh Krishnamurthy". The signature is fluid and cursive, with the first name "Ramesh" and last name "Krishnamurthy" clearly distinguishable.

Ramesh Krishnamurthy, Ph.D., PE  
Primary Examiner  
Art Unit 3753